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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,967	04/02/2004	Werner Holzl	HM/5-22028/A/CONT 2	1686

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EXAMINER

KEYS, ROSALYND ANN

ART UNIT PAPER NUMBER

1621

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/816,967	Applicant(s) HOLZL ET AL.	
	Examiner Rosalynd Keys	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-33,35 and 37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-33,35 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/573,403.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/6/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 22-33, 35 and 37 are pending.

Claims 22-33, 35 and 37 are rejected.

Claims 34, 36 and 38 are cancelled.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No.

09/573,403, filed on May 18, 2000. ***Information Disclosure Statement***

3. The information disclosure statement filed July 6, 2004 has been considered.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 37 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Employing the compound of formula (1) is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Employing the compound is critical to invention because if the compound is not used then the method will not occur.

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6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 37 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: employing the compound of formula (1).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 22 is rejected under 35 U.S.C. 102(b) as being anticipated by Troesken et al. (DE 2538016 A1).

Troesken et al. teach a compound of the claimed invention for use as a fungicide and bacterialcide (see attached abstract and compound 14 on page 3).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a

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whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 22-33, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muntwyler et al. (US 4,268,693) in view of Silverman (The Organic Chemistry of Drug Design and Drug Action, 1992, pages 15-19, in particular Table 2.2 on page 19).

Muntwyler et al. teach 3-hydroxydiphenyl ethers, compositions containing these

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compounds, and their use in combating microorganisms (see entire disclosure, in particular column 7, line 7 to column 11, line 25).

The compounds of Muntwyler et al. differ from the instant compounds in that the compounds of Muntwyler et al. are halogenated and the instant compounds are methylated.

Silverman teaches that methyl, fluorine and chlorine are classical isosteres, which have chemical and physical similarities, and which produce broadly similar biological properties (see page 19).

One having ordinary skill in the art at the time the invention was made would have found it obvious to substitute the fluorine and/or chlorine substituents of Muntwyler et al. with a methyl substituent, as taught by Silverman, with the expectation that the methylated compounds would have of similar chemical and physical properties to the halogenated compounds.

Silverman also teaches that bioisosterism is a lead modification approach that has been shown to be useful to attenuate toxicity or to modify the activity of a lead (see page 19).

One having ordinary skill in the art at the time the invention was made would have been motivated to substitute the fluorine and/or chlorine substituents of Muntwyler et al. with a methyl substituent, as taught by Silverman in order to modify the microbial activity of the compounds of Muntwyler et al.

7. Claims 22-24, 33, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Troesken et al. (DE 2538016 A1).

Troesken et al. teach use of compounds which are structurally similar to

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the compounds of the instant invention for use as fungicides and bactericides (see attached abstract, the compound having formula I on page 1 and compounds 5 and 7 and page 3).

The compounds disclosed by Troesken et al. differ as positional isomers of the claimed compounds. The compounds of the instant claims are unpatentable over the compounds of Troesken et al. because it has been held that compounds which differ only in the placement of substituents in a ring system is not patentable absent unexpected results. *In re Jones*, 162 F.2d 638, 74 USPQ 152 (CCPA 1947) and *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). It has also been held that a novel useful compound, which is isomeric with a compound of the prior art, is unpatentable unless it possesses some unobvious or unexpected beneficial property not possessed by the prior art compound. See *In re Norris* (CCPA 1950) 179 F2d 970, 84 USPQ 458; and *In re Finley* (CCPA 1949) 174 F2d 130 and 135, 81 USPQ 383 and 387. In the instant case the compounds have similar properties.

8. Claims 22, 23, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujikawa et al. (Yakugaku Zasshi, Vol. 91(9), pp. 930-933, 1971).

Fujikawa et al. teach the compound 4-hydroxy-4'-methyldiphenyl ether, which differs as positional isomer of the claimed compounds (see abstract). The compounds of the instant claims are unpatentable over the compounds of Fujikawa et al. because it has been held that compounds which differ only in the placement of substituents in a ring system is not patentable absent unexpected

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results. In re Jones, 162 F.2d 638, 74 USPQ 152 (CCPA 1947). It has also been held that a novel useful compound, which is isomeric with a compound of the prior art, is unpatentable unless it possesses some unobvious or unexpected beneficial property not possessed by the prior art compound. See *In re Norris* (CCPA 1950) 179 F2d 970, 84 USPQ 458; and *In re Finley* (CCPA 1949) 174 F2d 130 and 135, 81 USPQ 383 and 387.

The compounds of Fujikawa et al. possess antibacterial and antimicrobial activity against Hiochi Bacteria.

9. Claims 22-25, 27, 30-33 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leichlingen et al. (US 3,753,914).

Leichlingen et al. teach a hydroxy diphenyl ether which has antimicrobial activity and is useful for treating textiles (see entire disclosure, in particular column 1, line 15 to column 2, line 9).

The method of Leichlingen et al. differs from the instant method in that Leichlingen et al. utilize hydroxy diphenyl ethers which differ in the position of the hydroxy on the ring and the instant compounds substitute methyl for hydrogen.

One having ordinary skill in the art at the time the invention was made would have found the instant method obvious over the method of Leichlingen et al. because compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) are generally of sufficiently close structural similarity that there is a presumed expectation that

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such compounds possess similar properties. In re Wilder, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). Further, it is well established that the substitution of methyl for hydrogen on a known compound is not a patentable modification absent unexpected or unobvious results. In re Lincoln, 126 USPQ 477, 53 USPQ 40 (CCPA 1942); In re Druey, 319 F.2d 237, 138 USPQ 39 (CCPA 1963); In re Lohr, 317 F.2d 388, 137 USPQ 548 (CCPA 1963); In re Hoehsema, 399 F.2d 269, 158 USPQ 598 (CCPA 1968); In re Wood, 582 F.2d 638, 199 USPQ 137 (CCPA 1978); In re Hoke, 560 F.2d 436, 195 USPQ 148 (CCPA 1977); Ex parte Fauque, 121 USPQ 425 (POBA 1954); Ex parte Henkel, 130 USPQ 474, (POBA 1960).

10. Claims 22-24, 28, 29, 31, 33 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al. (US 4,980,153).

Jackson et al. teach a hydroxy diphenyl ether which has antibacterial activity and is useful in oral hygiene (see entire disclosure, in particular column 1, lines 5-56).

The method of Jackson et al. differ from the instant method in that Jackson et al. utilize hydroxy diphenyl ethers which may differ in the position of the hydroxy on the ring and the instant compounds substitute methyl for hydrogen.

One having ordinary skill in the art at the time the invention was made would have found the instant method obvious over the method of Jackson et al. because compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) or homologs

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(compounds differing regularly by the successive addition of the same chemical group, e.g., by -CH₂- groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. In re Wilder, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). Further, it is well established that the substitution of methyl for hydrogen on a known compound is not a patentable modification absent unexpected or unobvious results. In re Lincoln, 126 USPQ 477, 53 USPQ 40 (CCPA 1942); In re Druey, 319 F.2d 237, 138 USPQ 39 (CCPA 1963); In re Lohr, 317 F.2d 388, 137 USPQ 548 (CCPA 1963); In re Hoehsema, 399 F.2d 269, 158 USPQ 598 (CCPA 1968); In re Wood, 582 F.2d 638, 199 USPQ 137 (CCPA 1978); In re Hoke, 560 F.2d 436, 195 USPQ 148 (CCPA 1977); Ex parte Fauque, 121 USPQ 425 (POBA 1954); Ex parte Henkel, 130 USPQ 474, (POBA 1960).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosalynd Keys whose telephone number is 571-272-0639. The examiner can normally be reached on M, R and F 3:00-8:00 pm and T-W 5:30-10:30 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rosalyn Keys
Primary Examiner
Art Unit 1621

December 9, 2004